UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,749	01/10/2002	Kevin B. Stanton	PW 024 9725 P12817	8402

7590 07/14/2005	EXAMINER
Pillsbury Winthrop LLP Intellectual Property Group Suite 2800 725 S. Figueroa Street Los Angeles, CA 90017-5406	FLEARY, CAROLYN FATIMAH

ART UNIT	PAPER NUMBER
2152	

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/044,749	STANTON, KEVIN B.
	Examiner	Art Unit
	Carolyn F. Fleary	2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/9/2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response Amendment

An Acknowledgement is made of Applicants amended claims 30 and 31 response filed June 21, 2005 pertaining to Non-Compliant Amendment.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1.   Claims 1,2,4,5,7,8,10,11,13,14, 18, 21, 23, 30 are rejected under 35 U.S.C. 102(b)

as being clearly anticipated by Kayshyp (US 6,438,128).

In regards to claim 1 Kayshyp discloses a remote virtual network interface (500, col. 6 ll.

41-44) comprising:

- an Ethernet receiving (218) element in communication with an Ethernet node

  (222)(col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 59-67);

- an Ethernet transmitting (218) element in communication with the Ethernet node

  (222) (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 59-67);

- an Infiniband receiving element (210) to receive a data packet from a first

  InfiniBand node (202), wherein the data packet (300) includes a destination indicator

  (302 e.g. destination address)(col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45);

- a detector (214) to read the destination indicator (302) and to compare the

  destination Indicator to a known value(e.g. set of values) (col. 5 ll. 58 – col. 6 ll. 21,

  col. 6 ll. 35-52); and

- a routing element (214) to deliver the data packet from the InfiniBand receiving (210) element to an InfiniBand transmitting element(232) (col. 3 ll. 29-32), wherein the InfiniBand transmitting element transmits (232,226) the data packet from the first InfiniBand node (202, col. 4 ll. 41-44) to a second InfiniBand node(234,228) (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 50-58, col. 5 ll. 2-5 e.g. 232 provides capability to connect to other infiniband networks).

In regards to claim 7, Kayshyp discloses a network system (2), comprising:

- an Ethernet node (222) to receive a first data packet (300)from a remote virtual network interface (col. 4 ll. 59-67, col. 5 ll. 5-15);

- an Ethernet switch(220) to select the Ethernet node(222) to receive a second data packet(300) [col. 4 ll. 59-66]

- a first InfiniBand node (202) to transmit a data packet to the remote virtual network interface (col. 5 ll. 5-15), wherein the data packet(300) includes a destination indicator(302) [col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45]; and

- an InfiniBand switch(214) to select a second InfiniBand node(234) to receive the data packet from the first InfiniBand node(202), wherein the remote virtual network interface includes:
  - o an Ethernet receiving (218) element in communication with the Ethernet node(222),
  - o an Ethernet transmitting(218) element in communication with the Ethemet node(222),
  - o an InfiniBand receiving element (210) to receive the data packet(300) from the first InfiniBand node(202) [col. 5 ll. 5-15].

- o a detector (214) to read the destination indicator(302) and to compare the destination indicator to a known value(e.g. set of values,) (col. 5 ll. 58 – col. 6 ll. 21, col. 6 ll. 35-52),

- o a routing element(214) to deliver the data packet (300) from the first InfiniBand node (202) to the second InfiniBand node(234), and

- o an InfiniBand transmitting element(232) to transmit (col. 4 ll. 41-44) the data packet (300) from the first InfiniBand node(202) to the second InfiniBand node (234). (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 50-58, col. 5 ll. 2-5 e.g. 232 provides capability to connect to other Infiniband networks).

In regards to claim 14 and 23, Kayshyp discloses a method of routing a data packet from a first

InfniBand node(202) to a second InfiniBand node(234), comprising;

- providing Ethernet connectivity (provide via the Infiniband switch 214) to the first InfiniBand node(202) and to the second InfiniBand node(226,218,232);

- receiving a data packet from the first InfiniBand node wherein the data packet (300) includes a destination indicator(302)

- reading the destination indicator (col. 5 ll. 58 – col. 6 ll. 21);

- indicating by the destination indicator(302) that the data packet (300) is to be delivered (col. 5 ll. 43-44)to the second InfiniBand node(226,218,232), and

- delivering (col. 5 ll. 43-44) the data packet (300) to the second InfiniBand node (226,218,232).

In regards to claim 2, 8 and 18, Kayshyp discloses, wherein the destination indicator is a destination media access control ("MAC") address (col. 47-51).

In regards to claim 4 and 10 , Kayshyp discloses wherein the detector and the routing element are within a single device (214, col. 5 ll. 58 – col. 6 ll. 21).

In regards to claim 13, Kayshyp discloses the network system(2) according to claim 7,

wherein the first data packet(300) and the second data(300) packet are same(col. 4 ll. 59-

67, col. 5 ll. 5-15);

In regards to claims 5,11, 21, 30 Kayshyp discloses, wherein the remote virtual network

interface is virtualized by implementing microcode in a network processor.

Kayshyp discloses a network processor (202) but is silent on implementing microcode

therein. It is apparent, however that microcode (may be defined as permanent memory that

holds the elementary circuit operations a computer must perform for each instruction in its

instruction set or IEEE definition: A collection of microinstruction) exists and are necessary

to permit the operation of the system. Kayshyp discloses a processor coupled to a host

fabric (e.g. Infiniband) system memory (208) and memory controller connected to a host

adapter channel for permitting communication over an Infiniband network. (See Kayshyp

col. 4 ll. 30-58)

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a
> whole would have been obvious at the time the invention was made to a person having
> ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

3.   **Claim 3,9,15-17 and 20 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Kayshyp (6,438,128) in view of O'Connell et al. (US 6,661,787)

In regards to claim 3, 9, and 20 Kayshyp disclose wherein a set of values (known values)

are used to determine an appropriate communication network on which to transmit data

packets, wherein data packets may indicate destination a MAC address. (col. 5 ll. 58 – col. 6 ll. 21, col. 6 ll. 44-51)

Kashyap is silent on wherein the known value is a range of media access control address,

However O'Connel et al. discloses known value is a range of media access control address, (local range of MAC Address)

It would be obvious to one of ordinary skill in the art at the time of the invention to modify Kashyap by having known value as a range of MAC address, as taught by O'Connell in order to determine how to route data packets (abs, col. 39-59 col. 4 ll. 66- col. 5 ll. 15, claim 1)

In regards to claim 15, Kayshyp discloses the method according to claim 14, wherein the receiving of the data packet(300) from the first(202) Infiniband node(col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45))is performed by a network virtual interface(500, col. 6 ll. 41-44).

In regards to claim 16, Kayshyp discloses the method according to claim 14, wherein the reading (col. 5 ll. 58 – col. 6 ll. 21) of the destination in indicator (302) is performed by a detector (214).

In regards to claim 17, Kayshyp discloses the method of claim 14, wherein the delivering (col. 5 ll. 43-44) of the data packet(300) to the second Infiniband node(226,218,232) is performed by a routing element (214).

4.   **Claim 6,12, 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayshyp (6,438,128) in view** Parthasarathy et al. (US 2002/0191599)

In regards to claim 6,12,22, and 31, Kayshyp, discloses the remote virtual network interface

according, wherein the remote virtual network interface is virtualized by implementing

microcode (col. 4 ll. 30-58, Also see claim 5 rejection)

Kayshyp is silent the remote virtual network interface is virtualized by implementing

microcode in a set of integrated circuits.

Parthasarathy et al. discloses the remote virtual interface (120-160) virtualized by

implementing microcode in a set of integrated circuits (e.g. Asic) [0031] [0066] [0068]

[0077] [claims 9, 10, 11, 19, 20]

It would be obvious to one of ordinary skill in the art at the time of the invention to

modify Kayshyap by implementing microcode in a set of integrated circuits as taught by

Parthasarathy et al. for having an efficient multi-tasking pipelined instruction execution

system for controlling data transactions in a data network.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following prior are not relied upon may also be applied to subject matter pertaining to

virtual networks that may be applied to all claims.

- McCullough, Kevin A. (US 20020010866) A Peer-to-peer scalable bandwidth
  connection formation for computer network, involves scaling bandwidth of superior
  virtual circuit by establishing additional point-to-point between computer systems
  and public network. Prior art teaches formation of a virtual connection between
  nodes wherein said nodes comprise virtual circuit supporting high-speed point-point
  links. (see entire document)

- Bayer, Gerd Konrad et al. (US 20020099879) Virtualization of I/O adapter resources

The following prior are not relied upon may be applied to claims 5,6, 12,21, 22-31, for instance:

- Latif et al. (US 6400730) Method and apparatus for transferring data between IP network devices and SCSI and fibre channel devices over an IP network. Latif may also be applied to claims 5,11, 21, 30, as prior art explicitly indicates logic within Routing Logic block 350 can be implemented as hard coded logic or as a programmable method using a network processor, which is designed specifically for processing packets and which can be programmed to route either Ethernet and Infiniband frames.

- Lucent (Lucent Technologies, System Chip for Speeding Up Internet Data Flow Across Computer Networks, August 2000, http://www.agere.com/NEWS/PRESS2000/082200a.html). In regards to claims 6,12, 22 Lucent may also be applied as it is discloses virtualization by implementing microcode in a set of integrated circuits (paragraph 3). Lucent further discloses implementing microcode in a set of integrated circuits in order to make it easier to design the integrated circuits; easier to design into embedded systems; reduce circuit board space and thereby reduces electronics costs; reduce power consumption; and improves control and monitoring (See Lucent – Entire document)

- Georgiu (US 20030067913) Programmable storage network protocol handler architecture. Prior art discloses providing an architecture that achieves high-speed performance in protocol handlers. In regards to claims 23-31 for instance prior art discloses Performance is achieved via hardwired logic at the network interface which handles time critical cyclic redundancy check (CRC) interpretation of some header bits and functions, etc. Multiple processors are used which are interconnected via a high-speed interconnect. Each processor has capability of fully executing programs, and each processor's memory is globally accessible by other processors. Each processor has a memory hierarchy, consisting of embedded dynamic random access memory (DRAM) and can include data caches, instruction caches, scratch pad static random access memory (SRAM), or any combination of these memory elements (See [0009]).

The following prior are not relied upon may also be applied to subject matter pertaining to claims 2, 3, 8 9,15-18 and 20 in regards to known values, MAC and range of MAC address.

- Alexander; Thomas (US 6553029) Link aggregation in ethernet frame switches. Priori art teaches a MAC look-up table used for comparing and storing MAC addresses received in packets.
- Mahajan; Umesh et al. (US 6804236, 6785274, 6735201) compares the MAC destination address contained in the packet to predetermined MAC group addresses in order to determine a type of message

The following prior are not relied upon may also be applied to subject matter pertaining to Infiniband Apparatus

- Pettey; Christopher et al. (US 6594712) Inifiniband channel adapter for performing direct DMA between PCI bus and InifiniBand link

- Hendel; Ariel (US 6633946) Flexible switch-based I/O system interconnect

- Gasbarro, Dominic J. et al. , Parthasarathy, Balaji et al.. (US 20020184392, 20020071450, 6778548, 20020141424) Host-fabric adapter having bandwidth-optimizing, area-minimal, vertical sliced memory architecture and method of connecting a host system to a channel-based switched fabric in a data network

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn F. Fleary whose telephone number is (571) 5727218. The examiner can normally be reached on 8:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571)272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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